# REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol RCS: 01-24

INSTRUCTIONS: *Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).*

## SECTION I - PROPONENT INFORMATION

| 1. TO *(Environmental Planning Function)* | 2. FROM *(Proponent organization and functional address symbol)* | 2a. TELEPHONE NO. |
|---|---|---|
| 99 CES/CEVN | 99 CES/CEVX | 702-625-4614 |

3. TITLE OF PROPOSED ACTION
F-16 Crash Recovery Operations Plan

4. PURPOSE AND NEED FOR ACTION *(Identify decision to be made and need date)*
Remove downed F16 from top of Mormon Mtn.

5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES *(DOPAA) (Provide sufficient details for evaluation of the total action.)*
See Attached Operations Plan

| 6. PROPONENT APPROVAL *(Name and Grade)* | 6a. SIGNATURE | 6b. DATE |
|---|---|---|
| Eloisa Hopper, GS-14 | Eloisa V. Hopper | 28 Mar 01 |

## SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY.

*(Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U= unknown effect)*

| | + | 0 | - | U |
|---|---|---|---|---|
| 7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE *(Noise, accident potential, encroachment, etc.)* | | X | | |
| 8. AIR QUALITY *(Emissions, attainment status, state implementation plan, etc.)* | | X | | |
| 9. WATER RESOURCES *(Quality, quantity, source, etc.)* | | X | | |
| 10. SAFETY AND OCCUPATIONAL HEALTH *(Asbestos/radiation/chemical exposure, explosives safety quantity-distance, bird/wildlife aircraft hazard, etc.)* | | X | | |
| 11. HAZARDOUS MATERIALS/WASTE *(Use/storage/generation, solid waste, etc.)* | | X | | |
| 12. BIOLOGICAL RESOURCES *(Wetlands/floodplains, threatened or endangered species, etc.)* | | X | | |
| 13. CULTURAL RESOURCES *(Native American burial sites, archaeological, historical, etc.)* | | X | | |
| 14. GEOLOGY AND SOILS *(Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)* | | X | | |
| 15. SOCIOECONOMIC *(Employment/population projections, school and local fiscal impacts, etc.)* | | X | | |
| 16. OTHER *(Potential impacts not addressed above.)* WILDERNESS VALUES | X | | | |

## SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION

17.
- [ ] PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # _____ ; OR
- [X] PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.

18. REMARKS

AN EA/FONSI HAS BEEN PREPARED FOR THIS ACTION

X

AWFC/JA HAS SEEN VIA EMAIL

| 19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION *(Name and Grade)* | 19a. SIGNATURE | 19b. DATE |
|---|---|---|
| ELOISA V. HOPPER<br>Chief, Environmental Flight | Eloisa V. Hopper | 10 Apr 01 |

# Report Documentation Page

*Form Approved*
*OMB No. 0704-0188*



| 1. REPORT DATE | 2. REPORT TYPE | 3. DATES COVERED |
|---|---|---|
| **09 APR 2001** | **N/A** | |

| 4. TITLE AND SUBTITLE | 5a. CONTRACT NUMBER |
|---|---|
| **Environmental Assessment for the F-16 Crash Recovery on Morman Mountain** | 5b. GRANT NUMBER |
| | 5c. PROGRAM ELEMENT NUMBER |
| 6. AUTHOR(S) | 5d. PROJECT NUMBER |
| | 5e. TASK NUMBER |
| | 5f. WORK UNIT NUMBER |
| 7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **Nellis Air Force Base** | 8. PERFORMING ORGANIZATION REPORT NUMBER |
| 9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) | 10. SPONSOR/MONITOR'S ACRONYM(S) |
| | 11. SPONSOR/MONITOR'S REPORT NUMBER(S) |

12. DISTRIBUTION/AVAILABILITY STATEMENT
**Approved for public release, distribution unlimited.**

13. SUPPLEMENTARY NOTES
**The original document contains color images.**

14. ABSTRACT

15. SUBJECT TERMS

| 16. SECURITY CLASSIFICATION OF: | | | 17. LIMITATION OF ABSTRACT | 18. NUMBER OF PAGES | 19a. NAME OF RESPONSIBLE PERSON |
|---|---|---|---|---|---|
| a. REPORT | b. ABSTRACT | c. THIS PAGE | | | |
| **unclassified** | **unclassified** | **unclassified** | **UU** | **29** | |

**Standard Form 298 (Rev. 8-98)**
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DEPARTMENT OF THE AIR FORCE
99TH CIVIL ENGINEER SQUADRON (ACC)
NELLIS AIR FORCE BASE, NEVADA 89191

Mrs. Eloisa V. Hopper
Chief, Environmental Flight
99 CES/CEV
4349 Duffer Dr., Suite 1601
Nellis AFB NV 89191-7007

10 Apr 01

Mr. Dan Netcher
BLM Ely Field Office
702 Industrial Ave
Ely NV 89301-9408

Dear Mr. Netcher

Enclosed are the F-16 Crash Recovery Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) jointly prepared by BLM and Nellis AFB. Please sign the FONSI and fax the jointly signed FONSI to me at (702) 652-2021. The hardcopy can be mailed or hand carried next week.

If you have any questions, please call my point of contact, Mr. Jim Campe, at (702) 652-5813.

Eloisa V. Hopper
ELOISA V. HOPPER, GM-14
Chief, Environmental Flight

Attachments:
1. EA
2. FONSI

*Global Power For America*

**FINDING OF NO SIGNIFICANT IMPACT**

**1. Name of the Action:**
The name of this action is the F-16 Crash Recovery on Mormon Mountain.

**2. Description of Proposed Action and Alternatives**
The proposed action would be to remove remnants of the F-16 aircraft which crashed on Mormon Mountain on August 7, 2000. The proposed action would remove the remaining pieces of aircraft and reclaim the site "to a level as close as possible to the original condition or at least to a condition that is substantially unnoticeable." (*Interim Management Policy for Lands Under Review, H-8550-1*). Actions will take place as long as safety is not compromised.

The proposed action would be completed in the following five operational phases: Site Assessment, Site Abatement and Secondary Site Assessment, with a possible follow-on Contracted Abatement and Site Reclamation, and Follow-on Site Inspection. The site assessment phase investigated the feasibility of the overall steps required to remove debris and reclaim the site in a safe manner. The site abatement phase would establish a staging area and pick up most of the debris at the crash site. This phase would continue until the debris is completely cleaned up or until the Officer In Charge (OIC) determines that continuing the effort would pose undo safety risks to personnel. At the end of this phase, airlift and support removal would remove any remaining debris and support equipment from the mountainside. At the staging area, the debris would be packaged, loaded on trucks, and shipped to NAFB Area III for storage. The Secondary site assessment phase would revisit the site with AF and BLM representatives to determine if additional work is deemed necessary at the end of phase II. The possible contracted abatement phase would proceed if the above phases determine additional work is necessary to clean up debris at the site until a satisfactory resolution is met. A follow up visit by the AF and BLM to the crash site area will be programmed for completion in the summer of 2002. The purpose of this visit would be to investigate and remove any noxious weed establishment and to take soil samples to verify natural attenuation is progressing such that the area meets the State TPH standard.

**3. Summary of Environmental Impacts**
The proposed action and alternatives would abate or nearly abate all adverse impacts caused by the F-16 crash on Mormon Mountain.

**4. Conclusion**
On the basis of the findings of the Environmental Assessment, no significant impact is anticipated for either the proposed action or alternatives on human health or the natural environment. A Finding of No Significant Impact is warranted and an Environmental Impact Statement is not required for this action.

ROBERT C. LYNN
Colonel, USAF
Vice Commander

9 April 2001
Date

DANIEL R. NETCHER
Assistant Field Manager For
Nonrenewable Resources

4/13/01
Date

# ENVIRONMENTAL ASSESSMENT FOR THE F-16 CRASH RECOVERY ON MORMON MOUNTAIN

## .0 PURPOSE AND NEED FOR ACTION

1 Proposed Action: The proposed action would be to remove remnants of the F-16 aircraft, which crashed on Mormon Mountain on August 7, 2000. The proposed action would remove the remaining pieces of aircraft and reclaim the site "to a level as close as possible to the original condition or at least to a condition that is substantially unnoticeable." (*Interim Management Policy for Lands Under Review, H-8550-1*). Additionally, an initial crash recovery campsite was established at the base of the mountain. Actions will take place as long as safety is not compromised.

.2 Purpose and Need for Action: The aircraft crash occurred in a Wilderness Study Area designated as Mormon Mountain. Wilderness Policy is to maintain the pristine condition of the area to a level which human development is largely unnoticeable. The purpose of this action is to reclaim the site to an acceptable wilderness level and to protect the natural and human environment from residue from the aircraft. The action is needed to conform with the *Interim Management Policy for Lands Under Review (BLM H-8550-1).*

1.3 The Objectives of the Proposed Action: The objectives of the proposed action are to remove aircraft pieces in a safe manner while minimizing further new disturbances. The proposed action would airlift the pieces to a staging area and then transport them to Nellis Air Force Base.

1.4 Scope of Analysis: The scope of this analysis is limited to those actions required to remove the aircraft, reclaim the site, and transport the aircraft to the base. The resource areas discussed in this document are wilderness values, hazardous materials, air quality, special status species, cultural resources, visual resource management, noxious weeds and invasive species, vegetation, and wildlife. Resource areas determined not to be impacted are land use, flood plains, water quality (surface and ground), paleontological values, wetlands, riparian areas, areas of critical environmental concern, wild and scenic rivers, prime or unique farmlands, wild horses and burros, Native American Religious Concerns, environmental justice, livestock grazing, and socioeconomics.

## 2.0 Alternatives Including the Proposed Action

2.1 Description of Alternatives Including the Proposed Action:

**2.1** Proposed Action: An F-16 collision occurred on August 7, 2000. The result of the collision was the crash of one aircraft on Mormon

Mountain. The coordinates of the crash site are approximately 36° 58.852' N and 114° 30.916' W and 5900' elevation above sea level. This location is on the northwestern side of the mountain. The aircraft crash site burned throughout the night resulting in only a few large pieces that are left. There are scattered pieces of debris throughout the site. These pieces may require cutting to make them manageable to move to "Tri-Walls" containers for transportation. The aircraft is located in a Wilderness Study Area (WSA) managed by the BLM Ely District. According to a letter from the BLM District, and the crash site affects the functionality of the WSA. BLM has asked the USAF to remove the aircraft from the site. The crash site is in a high altitude area with rugged and steep terrain. The end state of the reclamation would be jointly determined by BLM and the USAF based upon BLM requirements and the safety and the welfare of the abatement team.

Additionally, an initial crash recovery campsite was established within the WSA as shown on the attached map. The camp was dismantled, however vehicle tracks and other signs of human activity was not reclaimed at that time. BLM and the USAF would jointly determine the end state of reclamation at this site as well.

Staging for the clean up action would occur at another location outside the WSA and approximately 10 miles from the crash site. The staging area would be located at a private ranch along the Elgin Road near Farrier and Rox adjacent to the railroad tracks (N 36° 49.73' and W 114° 39.53'). The landowner has agreed to allow use of his property. The site is a completely disturbed sand and gravel borrow pit. The staging area would include the support campsite for the proposed action and would be in an area where the tractor-trailer transport will be able to maneuver easily. The site is not near any utilities; therefore, generators and operation essential support will be required during Phase II and Phase III.

The proposed action would be completed in the following five operational phases: Phase I, Site Assessment; Phase II, Site Abatement and Secondary Site Assessment, with a possible Follow-on Phase IV, Contracted Abatement and Site Reclamation, and Phase V, Follow-on Site Visit.

Phase I: The site assessment phase investigated the feasibility of the overall steps required to remove debris and reclaim the site in a safe manner. This step occurred on March 1, 2001.

Phase II: The site abatement phase would establish the staging area for personnel and equipment needed to pick up most of the

Phase II: The site abatement phase would establish the staging area for personnel and equipment needed to pick up most of the debris at the crash site. The activities at the staging area include a campsite, mission preparation, briefings, equipment loading/unloading, and personnel support. A staging area would also be a landing site for the Nevada Army National Guard (ARNG) and contracted helicopters. Containers known as "tri-walls" would be placed at or near the crash site. Trees at the crash site would be trimmed if needed to assure for a operation and staging of equipment. Trees would be cut in a uniform manner as previously briefed by BLM representatives. Equipment to be placed on the mountain would be cleaned with compressed air at the staging area to prevent introduction of noxious weed seeds. A Chinook helicopter would airlift the large pieces out. The smaller pieces would be placed in mini-dumpsters or tarps and airlifted out. The debris would be taken to the staging area. This phase would continue until the debris is completely cleaned up or until the Officer In Charge (OIC) determines that continuing the effort would pose undo safety risks to personnel. At the end of this phase, airlift and support removal would remove any remaining debris and support equipment from the mountainside. At the staging area, the debris would be packaged, loaded on trucks, and shipped to NAFB Area III for storage.

Phase III: Secondary site assessment phase would revisit the site with AF and BLM representatives to determine if additional work is deemed necessary at the end of phase II. This phase would be started at the end of Phase II while crews are potentially available for additional activities associated with this phase. The activities during this phase would include the logistics planning of the remaining debris and site reclamation. Manure would be spread over the fuel spill area to enhance the natural remediation of the TPH at the site. Discussions between the BLM and the AF indicate that reseeding in the area would not be required.

The initial campsite was located in a wash and heavy rains have occurred since the site had been vacated. It is possible the runoff could have naturally removed evidence of the campsite. This site will also be visited during the site abatement phase to determine and implement reclamation efforts as required. The BLM and AF would jointly determine reclamation needs.

Phase IV: The contracted abatement phase would proceed if the above phases determine additional work is necessary to clean up debris at the site until a satisfactory resolution is met. The contractor would also implement the site reclamation that would

include all remaining activities necessary to restore the areas to acceptable levels.

Phase V: A follow up visit by the AF and BLM to the crash site area will be programmed for completion in the summer of 2002. The purpose of this visit would be to investigate and remove any noxious weed establishment and to take soil samples to verify natural attenuation is progressing such that the area meets the State TPH standard.

2.1.2 Alternatives to the Proposed Action: Partial Removal - The proposed action would at least remove the larger pieces of debris. If the OIC determines continuing the site abatement phase should be discontinued prior to complete clean up of the site is acceptable to the BLM, the BLM and the AF would develop alternatives to the level of acceptance. At this point, Phase IV would be established and implemented.

No Action Alternative: The no action alternative would leave the aircraft as is, where is and discontinue any further clean up activities. This alternative would violate the *Interim Management Policy for Lands Under Review (BLM H-8550-1).*

2.1.4 Alternatives Considered but Not Carried Forward: One alternative discussed was grading an access road to the site to facilitate clean up efforts. The alternative was dismissed because it would be time-consuming, expensive and cause more environmental damage than either the proposed action or no action. Furthermore, it would essentially destroy the wilderness characteristics of the area.

3.0 Affected Environment and Environmental Consequences

3.1 Description of Project Area: The project area consists of three geographically distinct areas. The crash site is located on Mormon Mountain at an elevation of approximately 5900 feet. The site is steep and rocky. Vegetation is sparse at the crash location; a few juniper, pinion pines, and sagebrush surround the site. The original support site was located in a wash just within the WSA and all equipment has been removed from this site. The staging area would be located on a formerly used gravel pit that is completely disturbed. This site is approximately five miles south of the original support site. This site would not be located on the WSA.

3.2 Wilderness Values

The objective of the Wilderness Act of 1964 (PL 88-57) is "to assure that an increasing population accompanied by expanding

settlement and growing mechanization, does not occupy and modify all areas within the United States." The Act established a National Wilderness Preservation System to be "...administered for the use and enjoyment of the American people in such a manner as will leave them unimpaired for future use and enjoyment as wilderness ... to provide for the protection of these areas and the preservation of their wilderness character." *Interim Management Policy for Lands Under Review (BLM H-8550-1)* requires that BLM manage Wilderness Study Areas as Wilderness Areas until Congress establishes the official wilderness designation for these areas.

The proposed action and alternatives would conduct clean up activities to a level as close as possible to the original condition or at least to a condition that is substantially unnoticeable. The crash had adverse impacts on the wilderness values since the wreckage imposes human influence on a WSA. Tracks and disturbances remained at the initial campsite after it was dismantled. The proposed action and alternatives would abate these impacts to an acceptable level to restore the wilderness values of the site.

The no action alternative would leave the aircraft of the mountain and would not improve the degraded wilderness values of the site.

## 3.3 Hazardous Materials

There are hazardous materials at the crash site as a result of the crash and subsequent burning and scattering of the F-16 debris. The hydrazine was removed during the initial crash recovery effort and is no longer on site. Petroleum products (POL) include JP-8 aviation fuel (up to 3,000 lbs), engine oil (17 pt.), and hydraulic fluid (5 gal). There has been an identified high amount of TPH contaminated soil at the crash site due to the leaking of POLs into the soil. Thorium Fluoride (Thorium 232) is installed on the outer window of the cockpit. Approximately 1.1 grams are installed. Inhalation or ingestion of particulates could pose potential problems. Graphite Epoxy composite fibers are located on the horizontal and vertical stabilizer. The burnt composite fibers may have become friable and pose a safety hazard through inhalation and ingestion of the particulates. Proper respiratory equipment must be worn when handling the material. The Americium 241 is a minor hazard due to the small amount (approx. 8 microcuries) used on the lantirn pod.

The proposed action and alternatives would pick up debris. Picking up the large pieces of debris would remove most of the

composite materials. To the extent possible, as much of the composite fiber material would be picked up. It is not possible to pick up every scrap of the material, but the remaining material should be sufficiently small enough to not pose short or long term risks to human health or the environment. Remediation options for the residual petroleum products at the site require BLM concurrence and NDEP approval. This step would not occur until the debris is removed to an acceptable level. Because of the remoteness of the site, soil removal by mechanical means is not possible. In recent other aircraft crashes, the accepted remediation method was natural attenuation, sometimes assisted with the placement of manure to increase microbe activity. It is expected that a similar remediation would be accepted for this site. The thorium window and the americium pod would be removed during the site abatement phase. Removal of the aircraft debris and natural attenuation would reduce risks to humans and wildlife from exposure to hazardous materials.

All equipment and materials have been removed from the original support site; therefore there would be no impacts due to hazardous materials at this location. The new support site would have portable generators, vehicles, and crash debris. It is unlikely that a spill would occur at the staging area, drip pans, and other precautions would be used at the site. Any spills would be removed in accordance with applicable state, local, and federal regulations.

3.3.3 The no action alternative would leave all remaining debris at the crash site. The number of receptors would be limited to indigenous wildlife and the occasional hiker. Although neither wildlife nor human receptors exist in great numbers, receptors would be exposed to hazardous materials in the crash area.

## 3.4 Air Quality

The crash site, original support site, and the staging area are located outside the Las Vegas Valley non-attainment area for carbon monoxide and particulate matter.

The helicopter flights and vehicular travel associated with the proposed action and alternatives would generate air pollutants. Both activities are short-term in nature and since they are outside of the non-attainment area, a formal conformity analysis is not required.

The no action alternative would not generate air pollutants.

3.5 Special Status Species (Including Federally Listed or Proposed Threatened and Endangered Species and State Sensitive Species)

There are no federally listed threatened or endangered species in the crash site area. The desert tortoise habitat is generally in the lower elevations of the Mojave Desert. The crash site is nearly 6000 ft elevation, well above tortoise habitat. The original support site has been vacated and the staging area is completely disturbed.

3.5.2 The proposed action and alternatives would restore, to the extent possible, the crash site. The reclamation activities would abate most or all of the adverse impact caused by the aircraft crash.

The no action alternative would leave the residue in place and the area would not be restored to the original condition.

3.6 Cultural Resources

Section 106 of the National Historical Preservation Act requires that federal agencies consider impacts to cultural and archaeological resources due to their actions. The BLM has implemented a Programmatic Agreement with the State Historical Preservation office covering activities that are considered as casual use. The high altitude and rugged, steep terrain where the crash site is located makes this an unlikely location for any cultural resources. Helicopters will be used to transport personnel and equipment to the crash site, and remove debris from the site instead of building ground-disturbing access roads. Removal of debris and reclamation of the crash site is a low impact task posing little or no threat to any cultural resources that might be in the area.

The proposed action and alternatives would not involve new ground disturbances at the original campsite or the staging area. The activities at the crash site would be picking up large debris by helicopter and smaller debris by hand. Dumpsters and "tri-folds" would be placed on the mountainside to deposit the small and mid-size pieces into. Discussions with the BLM indicate these activities are consistent with casual use and are covered by the programmatic agreement. Also, the Areas of Potential Effect were previously disturbed by active wash cutting, a road, and the action of the crash, thus precluding additional research under Section 106. Therefore, there would be no impact to cultural resources.

**3.6.3** The no action alternative would not impact cultural resources.

## 3.7 Visual Resource Management

The crash event had adverse impacts on visual resources within the WSA. All Wilderness Study Areas are considered to be Class 1 visual resource management areas. Class 1 is the most protected classification and states that no permanent visual disturbances are allowed within the classified area.

The proposed action and alternative would clean up debris from the site to restore it to a condition that would meet the qualification of a Class I visual resource management area.

The no action alternative would leave the aircraft on site and would not restore the visual resources to a class I condition.

## 3.8 Noxious Weeds and Invasive Species

Noxious weeds are specific species that have been listed by the Nevada Department of Agriculture. It is a legal term that identifies any plant designated by a Federal, State, or county government to be injurious to public health, agriculture, recreation, wildlife, or any public or private property. Invasive species may or may not be legally defined as noxious. Both noxious and invasive species can have long-term consequences for ecological structure, composition, and function, across large landscapes.

The proposed action and alternative would use compressed air to clean off dirt from the equipment that would go on the mountain. A possibility exists that workers could transport weed seeds on the mountain during clean up efforts. A follow-on site visit would investigate whether noxious weeds or invasive species are growing at the crash site. If found, the plants would be removed by approved methods.

The no action alternative would leave the aircraft on site and a follow-on site visit would not occur. It is unlikely that leaving the airplane wreckage on site would contribute to a significant noxious weed or invasive species problem. Flightline activities occur in a relatively seed-free environment and the fireball after the crash probably destroyed any seeds, which may have been transported by the aircraft.

## 3.9 Vegetation

Vegetation is sparse at the high altitude and rugged, steep terrain where the crash site is located. A few pinions and sagebrush were burnt as a result of the crash.

The proposed action and alternatives would remove approximately five to ten pinion and/or juniper trees, which are roughly seven feet tall. Safety and operational considerations would determine the necessity to remove the trees. The trees would be removed in a uniform manner in accordance with BLM requirements. Other than a few trees, vegetation would not be impacted.

The no action alternative would have no impacts on vegetation.

3.10 Wildlife

3.10. Wildlife at the high altitude and rugged, steep terrain where the crash site is located could include bighorn sheep, coyotes, deer and small rodents. No evidence of wildlife casualties was observed during the initial clean up of the site.

3.10.2 The proposed action and alternatives would clean up hazardous debris that could potentially be ingested by wildlife and abate the impacts to wildlife.

3.10.3 The no action alternative could impact wildlife if the hazardous material was left on the mountain and an animal inhaled or ingested some of the hazardous material. The wreckage itself would have no impacts on wildlife because in general, inert items introduced to a habitat area become part of the landscape from a wildlife perspective. Animals would eventually get used to the wreckage and have no long-term impact to wildlife.

4.0 Consultation and Coordination: This environmental assessment has been sent to the State Single Point of Contact at the State Clearinghouse. A press release has been prepared and delivered to the local Las Vegas newspapers. Agency coordination consisted of numerous meetings and telephone calls between the BLM and the Air Force. The proposed action was developed as a result of this coordination.


Figure 1: Site Map Showing Project Locations

Tab **DRAFT**

Copy No 1
99 ABW
Nellis AFB, NV
16 Jan 01

**F-16 CRASH RECOVERY OPERATIONS PLAN**

References: USGS Maps of Rox and Rox NE Quadrangle (Lincoln Co, NV)

COMMAND RELATIONSHIPS. Colonel Eulberg, the 99 ABW Commander at Nellis AFB, NV, is the host installation of the F-16 that crashed on Mormon Mountain on 7 Aug 00. He has tasked his staff, with 99 SPTG/CC as the lead, to determine a cost-benefit analysis on the removal of this aircraft from this Wilderness Study Area (WSA). This operational plan describes how the USAF will potentially remove this wreckage from the WSA.

1. Situation. An F-16 collision occurred on 7 Aug 00. The result of the collision was the crash of one aircraft on Mormon Mountain. The coordinates of the crash site are approximately 36° 58.852" N and 114° 30.916" W and 5900' elevation above sea level. This location is on the northwestern side of the mountain. The aircraft crash site burned throughout the night resulting in only a few large pieces that are left. The other debris is scattered pieces throughout the site. These pieces may require cutting to make them manageable to move to a conex. The aircraft is located in a Wilderness Study Area managed by the BLM Ely District, according to a letter from the BLM District, and the crash site affects the functionality of the WSA. BLM has asked the USAF to remove the aircraft from the site. The crash site lies in a high altitude area with rugged and steep terrain. The end state of the reclamation is determined by BLM, the USAF, and their requirements based on safety and the welfare of the abatement team.

1.1. Guidance. The crash site is located in the WSA. This area is a preserved wilderness area and the crash itself violates the established Interim Management Policy and Guidelines for Lands under Wilderness Review. The IMP guides the use of BLM land and the reclamation of unauthorized or emergency events. According to BLM, there were two violations of the IMP associated with the F-16 crash: the crash itself and the support camp set up in an active wash. The support camp trespassed 10 feet into the boundary. Both of these areas will require reclamation and public notification.

1.2. BLM Environmental Concerns.
1.2.1. Composition, location, disposition, movements, and strengths. The location of the site is at 5900 feet above sea level. Tortoises are not present at this elevation. The other animal in this area is the Big Horn Sheep. Big Horn Sheep will not give the site much attention. According to the professional opinion of the C&N Resources flight at Nellis AFB, no animals will be affected by the crash.
1.2.2. Strategic concept. BLM feels the USAF did not react to this situation in cooperation with established procedures. The 99 SPTG/CC and other members of the Team Nellis met with BLM. BLM recently notified public agencies of the situation.
1.2.3. Major objectives. The major objective of this mission is to reclaim the impact caused by the crash of the aircraft to a level as close to the original conditions, or to an acceptable level.

1.2.4. Vulnerabilities. Hikers and other curious people that visit the crash site may experience increased risk if they attempt to scavenge the site for souvenirs and try to carry them down the steep terrain. The pieces left of the aircraft can be very heavy. There are hazardous materials at the crash site as a result of the burning and scattering of the F-16 debris. The hydrazine was immediately removed and is no longer on site. POLs include JP-8 aviation fuel (up to 3,000lbs), engine oil (17 pt.), and hydraulic fluid (5 gal). There has been an identified high amount of TPH contaminated soil at the crash site due to the leaking of POLs into the soil. Natural attenuation is an option to remediate the crash site. Other options must be looked at to determine most efficient and safest. Thorium Fluoride (Thorium 232) is installed on the outer window of the cockpit to enhance transmittance. Approximately 1.1 grams is installed. Inhalation or ingestion of particulates could pose potential problems. Graphite Epoxy composite fibers are located on the horizontal and vertical stabilizer. The burnt CM may have become friable and pose a safety hazard through inhalation and ingestion of the particulates. Proper respiratory equipment must be worn when handling the CM. The Americium 241 is a minor hazard due to the small amount (approx. 8 microcuries) used on the lantrin pod.
1.2.5. COGs and decisive points. BLM wants the USAF to respond to the situation and provide results. These results will be based upon the safety of the operation and will include BLM representatives for coordination.

1.3. BLM Forces. Jack Tribble (Jack_Tribble@nv.blm.gov) and Dan Netcher (775-289-1872) have been the main POCs for BLM. Correspondence with them has been in progress during the development of the operations plan. ~~BLM~~ will ~~be asked to~~ complete an environmental assessment ~~after~~ the mission has ~~been completed for a final review~~. started before Phase II of the AF
1.4. Assumptions. There are no real health hazards other than the composite fibers. These fibers have been contained at this time.

2. Mission. The mission of this operation is to reclaim the impacts of the crash site and support camp as close as possible to the original conditions, or to an acceptable level. This is accomplished in four phases. Phase I includes the initial site assessment. This phase will determine the capabilities and support required to remove the downed aircraft from the site. Ground safety determination of the site will help determine the level of clean up required. Phase II will employ the active operation and remove the prescribed debris. Phase III will utilize heavy airlift and remove the debris from the mountain and removal of all military support. Phase IV will be the reclamation of the site for final approval by the governing authorities.

3. Air and Ground Operations.

3.1. Strategic or Operational Concept.
3.1.1. Joint force organization. ARNG and private contractors have been approached to support this mission. The ARNG is willing to provide heavy airlift support to team Nellis.
3.1.2. Joint force air objectives. Heavy airlift support will be utilized during this operation from the Nevada Army National Guards from Reno. This unit will provide heavy airlift to remove all determined debris, equipment placement, and emergency airlift. Private contractor support will be acquired for lift requirements not involving ARNG.

3.1.3. Beddown overview. Beddown will include the support campsite located at the base of Mormon Mountain, approximately 10 miles from the crash site. The location of the site will be in an area where the tractor-trailer transport will be able to maneuver easily. The appropriate site has been located and is a privately owned ranch at the location N 36° 49.73" and W 114° 39.53". The site is not near any utilities; therefore, generators and operation essential support will be required during Phase II and Phase III. The landowner is in agreement for us to use his property.

3.1.4. Operational Phases
3.1.4.1. Phase I. Site Assessment
3.1.4.2. Phase II. Site Abatement
3.1.4.3. Phase III. Airlift and Support Removal
3.1.4.4. Phase IV. Secondary Site Assessment
3.1.4.5. Phase V. Contracted Abatement
3.1.4.6. Phase VI. Site Reclamation

3.1.5. Phase Timing of Joint Air Operations
3.1.5.1. Phase I. 1 March 2001. Duration of 1 day.
3.1.5.2. Phase II. 16 April 2001. Max phase time 5 days
3.1.5.3. Phase III. 26 April 2001. Duration of 2 day
3.1.5.4. Phase IV. 26 April 2001. In conjunction with Phase III
3.1.5.5. Phase V. 1 June 2001. Request for bids included in timeframe
3.1.5.6. Phase VI. Summer 2001. Duration dependent upon vegetation development and approval of reclamation.

3.2. Phase I (Site Assessment)

3.2.1 Operational Concept. The purpose of this phase is to bring in interested parties to view the site and assess the safety and ability to remove debris and reclaim the site.

3.2.2 General missions and guidance. Teams will deploy personnel and the appropriate equipment to survey the crash site.

3.2.3. Capabilities/forces required by capability.
3.2.3.1. 57 EMS. 3 person team
3.2.3.2. 99 CES. 2 person
3.2.3.3. 99 CS. 1 person for ORM
3.2.3.4. Contracting. 2 persons
3.2.3.5. 99 MDG. 1 Bioenvironmental rep
3.2.3.6. AWFC/SEG. 1 Ground Safety, 1 Flight Safety

3.2.4. Tasks of subordinate commands.
3.2.4.1 57 EMS. Crash and recovery will aid in determining the steps required to prepare the site for Phase II of the operation. This may include but is not limited to: cutting the aircraft into smaller pieces, securing aircraft pieces, placement of debris into CONEXs.

3.2.4.2. 99 CES. CES will determine beddown location and requirements to support the Phase II operation. CES/CEV may need to provide support and will address any environmental concerns for this site and mission.
3.2.4.3. 99 CS. Personnel will gather information for the Operational Risk Management report
3.2.4.4. Contracting. Contracting will gather information needed to establish bids from private contractors.
3.2.4.5. 99 MDG. Bioenvironmental will test the site for any health and safety concerns since the last check at the time of the crash.
3.2.4.6. AWFC/SE. Ground safety will provide an observer to ensure safety during operations of the assessment and provide intelligence about the site and conditions of the site during this timeframe. They will also aid in the development of the Operational Risk Management plan.

3.2.5. Reserve forces. The Reno Army National Guards are flying the CH-47 Chinook for the initial assessment. Coordination through Base Ops, Range Scheduling, and Airspace Scheduling was coordinated so that the mission may be completed, and the Chinook will be refueled. The Chinook will be unable to hot-refuel due to the size of the aircraft.

3.2.6. Mobility. Equipment will be provided per unit. Initial transport will be provided by the Army National Guard unit in Reno, Nevada. It is estimated that the site is 45 miles away. The teams will need approximately 3 hours to complete the mission for phase I.

NOTE: Phase I has been completed and the following phase description includes issues identified in Phase I.

3.3. Phase II (Site Abatement)

3.3.1. Operational Concept. The purpose of this phase is to locate the abatement teams on site and begin the preparation of the Tri-walls for heavy airlift. Other important aspects include the general cleanup of the area due to impacts from the crash.

3.3.2. General missions and guidance. There are many options to the cleanup of the area. Most are eliminated due to the extreme nature and location of the site. Typically, Crash and Recovery will remove any debris from an aircraft crash. This crash is special due to the location of the site. Heavy machinery cannot be used due to the high slope on the mountainside. A group of 30 to 60 people is usually used to help pick up the debris from crash site, but because of the location and safety concerns, a small team of 10 or less trained professionals will be a more likely option. For these reasons, we will be looking at a few specialized options for removal using air transport. Abatement teams attempting to remove the debris experience a higher risk of injury due to the rugged terrain, large amount of heavy debris, and sharp edges from aircraft pieces.
3.3.2.1. Timeline of Operation
3.3.2.1.1. Days 1&2
Private Helo placement of 1 PJ and 57 EMS personnel and resources. 57 EMS will prepare site during these two days. Operations in spraying down soil and debris to reduce airborne dust. The PJ will serve as the chief medic on the mountain. 57 EMS will bring Tri-wall containers along with aluminum pallets as the conexs for debris. SFS will provide security of equipment and other resources at night.

3.3.2.1.2. Days 3&4
Use ARNG for heavy airlift removal of pieces. 57 EMS, PJ, and ARNG riggers will sling out larger pieces. They will be flown to the support site and loaded onto transport. SFS will provide security of equipment and other resources at night.
3.3.2.1.3. Day 5 Until Complete
Use ARNG heavy airlift for transport, emergencies, and lifting Tri-walls from site. Hand carry pieces will be picked up by 57 EMS and PJ personnel and placed into the Tri-walls. Clean up will continue until conditions become unsafe.
3.3.2.1.4. As above phase completes
BLM will visit site progress. A secondary assessment of future operations required will be made by USAF and BLM representatives.
3.3.2.1.5. TBD
Finish clean up and reclamation of site by contractor if necessary.

3.3.3. Capabilities/forces required by capability.
3.3.3.1. 57 EMS. 5 trained personnel
3.3.3.2. 66 RSC. PJ's for mountainside & medical expertise
3.3.3.3. 99 CES. 2 people
3.3.3.4. 99 TRNS. Tractor-trailer and supporting personnel
3.3.3.5. 99 MDG. 2 EMT and ambulance
3.3.3.6. 99 CS. 2 Ground Radio personnel, 1 Photographer
3.3.3.7. AWFC/SEG. 1 Ground safety observer
3.3.3.8. Contractor. Airlift and placement of personnel and resources may be required.
3.3.3.9. Reno ARNG. Heavy airlift support.
3.3.3.10. 99 SFS. Personnel to secure support site at night

3.3.4. Tasks of subordinate commands.
3.3.4.1. 57 EMS. It will be the responsibility of the to prepare the site according to what is prescribed by the heavy airlift support unit. Appropriate safety guidelines will be followed when handling and working around the composite fibers. The Americium will also be removed from the lantrin pod and recovered back to the base.
3.3.4.2. 66 RSC. Initially, 1 PJ will be tasked to provide mountainside operations and also medical assistance in time of need. This will occur during the first four days of Phase II. Reserve PJ's will be asked to participate during clean up. Their tasking would include assistance for rigging Tri-walls, CONEXs, netting, etc. to the ARNG CH-47. They also provide on-scene medical support.
3.3.4.3. 99 CES. CES/CEX will provide support in locating, erecting, and sustaining the support campsite where the CONEXs will be prepared to transport. CES will provide generators to support the mission. CES/CEV will provide support and will address any environmental concerns for this site and mission.
3.3.4.4. 99 TRNS. Trans will provide the appropriate vehicles to transport personnel, equipment.
3.3.4.5. 99 MDG. MDG will provide emergency medical support for the operation at the support site. EMT's will be needed starting day 3 of Phase II.

3.3.4.6. 99 COMM. Support will be needed for communications among support camp, abatement team, and any emergency response (MDG or 66 RS). Photography may also be needed during this phase.
3.3.4.7. AWFC/SE. Ground safety will provide an observer to ensure safety during operations of the removal and provide intelligence about the site and conditions of the site during this timeframe. They will also aid in the development of the Operational Risk Management plan.
3.3.4.8. Contractor. A private helicopter company may be tasked with the placement of the initial teams, follow-on, and to place some of the resources as well.
3.3.4.9. Reno ARNG. Heavy airlift support, rigging, and removal.
3.3.4.10. 99 SFS. Personnel to secure equipment and resources at the support site each night.

3.3.5. Reserve forces. Pararescuemen will act as chief medical on site and also provide mountainside safety procedures.

3.3.6. Mobility. 99 TRNS will provide ground transportation of all personnel and required equipment. A contractor will provide airlift support. The Reno ARNG will also provide any excess airlifting support.

3.4. Phase III (Airlift and Support Removal)

3.4.1. Operational Concept. Redeployment of forces to return to Nellis AFB.

3.4.2. General missions and guidance. Teams will redeploy personnel and resources back to Nellis AFB along with the debris from the wreckage. Heavy airlift will be used to lift all remaining designated debris off of the mountainside. Nellis AFB will provide the ground transportation to move personnel, resources, and debris back to the appropriate areas. The debris will be stored for two years at Area III in accordance with regulations.

3.4.3. Capabilities/forces required by capability
3.4.3.1. 57 EMS. 5 trained personnel
3.4.3.2. 66 RSC. PJ's for mountainside & medical expertise
3.4.3.3. 99 CES. 2 people
3.4.3.4. 99 TRNS. Drivers of tractor trailers
3.4.3.5. 99 MDG. 2 EMT and ambulance
3.4.3.6. 99 CS. 2 Ground Radio personnel, 1 Photographer
3.4.3.7. AWFC/SEG. 1 Ground Safety, 1 Flight Safety
3.4.3.8. Contractor. Airlift and placement of personnel and resources may be required.
3.4.3.9. Reno ARNG. Heavy airlift support
3.4.3.10. 99 SFS. Personnel to secure support site at night

3.4.4. Tasks of subordinate commands
3.4.4.1. 57 EMS. Crash and Recovery will prepare their equipment and personnel for full removal of the crash site.
3.4.4.2. 66 RSC. The PJ's will be tasked to provide mountainside operations and also medical assistance in time of need.

3.4.4.3. 99 CES. CES will prepare for redeployment back to main base. CES/CEV will provide support and will address any environmental concerns for this site and mission.
3.4.4.4. 99 TRNS. Trans will provide the appropriate vehicles to transport personnel, equipment, and wreckage debris to the appropriate locations on Nellis AFB.
3.4.4.5. 99 MDG. MDG will provide emergency medical support for the operation.
3.4.4.6. 99 COMM. Support will be needed for communications among support camp, abatement team, and any emergency response (MDG or 66 RS). Photography may also be needed during this phase.
3.4.4.7. AWFC/SE. Ground safety will provide an observer to ensure safety during operations of the redeployment and provide intelligence about site conditions. Flight safety may be needed to observe the air operations.
3.4.4.8. Contractor. A private helicopter company may be tasked with the removal of the personnel and if the company has the capabilities to place remove of the resources as well.
3.4.4.9. Reno ARNG. Heavy airlift support.
3.4.4.10. 99 SFS. Personnel to secure equipment and resources at the support site each night.

3.4.5. Reserve forces. Location and composition unknown at this time.

3.4.6. Mobility. The Reno ARNG will provide primary air transport unless it proves to be more economical to contract a helicopter.

3.5. Phase IV (Secondary Site Assessment)

3.5.1. Operational Concept. The purpose of this phase is to gather the information. Bureau of Land Management representatives and contractors will be brought to view the progress of the site and determine future operational concepts. If required, information relevant to construct a bid request will be acquired. This will include logistics associated with the removal of remaining debris and reclamation of the site.

3.5.2. General missions and guidance. A contract will be put into effect providing guidance to the further abatement of the site. During this assessment, all the information will be gathered to provide accurate information to put into a contract bid. After the bid request is submitted, interested contractors will flown to the site so they may accurately determine job costs and requirements.

3.5.3. Capabilities/forces required by capability
3.5.3.1. Contracting. Set up bid request and contractor support
3.5.3.2. Helo support. Contractor supported helo airlift.
3.5.3.3. BLM Representatives

3.5.4. Tasks of subordinate commands
3.5.4.1. Contracting. Contracting will set up the bid request based on the information provided to them. After bids are received they will help to fly the interested parties to the crash site for further evaluation.
3.5.4.2. Helo Support. A private helicopter contract will be set up to support the mission.
3.5.4.3. BLM Representatives. Provide guidance on future reclamation efforts.

3.6. Phase V (Contracted Abatement)

3.6.1. Operational Concept. The purpose of this phase is to proceed with abatement. Contractors will remove the remaining debris until a satisfactory level of clean up has occurred, as determined by USAF and BLM.

3.6.2. General missions and guidance. Based upon the results of this investigation and cost analysis, the USAF and BLM will come to an agreement on the acceptable amount of cleanup of the crash site. Contractors will accomplish the agreed clean up level through approved processes.

3.6.3. Capabilities/forces required by capability
3.6.3.1. Contracting. Provide guidance to the contractors
3.6.3.2. Contractor. Abatement of the crash site.

3.6.4. Tasks of subordinate commands
3.6.4.1. Contracting. Provide guidance to the contractors
3.6.4.2. Contractor. Abatement of the crash site.

3.7. Phase VI (Site Reclamation)

3.7.1. Operational Concept. The purpose of this phase is to develop the restoration of the natural resources at the sites. Reclamation of the crash site and the campsite at the base of the mountain may include seeding and fertilization or by letting nature take its course. BLM and EM will provide guidance on the best approach to reclamation.

3.7.2. General missions and guidance. Based upon the results of this investigation and cost analysis, the USAF and BLM will come to an agreement on the acceptable amount of cleanup of the crash site. Contamination of the soil from POLs and other hazardous materials will be addressed. Sampling of the soil at a later date will help determine if natural attenuation is an acceptable means of remediation. The POL TPH level was at extremely high levels at the initial sampling of the soil. Again, BLM will provide the final input as to the total remediation of the contaminated soil. The crash itself and the support camp have torn up parts of the land and vegetation. The IMP requires the land be reclaimed to its original condition. Natural seeding may be an appropriate action or there may be a need to obtain the proper seed mix and spread it over the areas along with minor maintenance until the seeds establish.

3.7.3. Capabilities/forces required by capability
3.7.3.1. 99 CES. EM personnel
3.7.3.2. Contractor. Contracted company to complete required tasks
3.7.3.3. Contracting. Provide guidance to the contractors

3.7.4. Tasks of subordinate commands

3.7.4.1. 99 CES. CES/CEV will provide support and will address any environmental concerns for this site and mission.
3.7.4.2. Contractor. Contracted company to complete required tasks.
3.7.4.3. Contracting. Provide guidance to the contractors

3.7.5. Reserve forces. Location and composition unknown at this time.

3.7.6. Mobility. Mobility will be the responsibility of the contractor. Permission to gain access to airspace and any other military governed space will be the responsibility of the contractor.

4. Logistics. Brief, broad statement of the sustainment concept for the joint air operations with info and instructions applicable to the air ops by phase. Logistics must be consistent with operational phases

4.1. Medical service. The 99th MDG will provide ground medical support. It will provide an ambulance and personnel to support medical care at the support site. Casualties requiring advanced life support will require stabilization, transportation, and delivery to a trauma center within 1 Hour of injury. Our basic EMT support ambulance crew can stabilize these casualties, but will require dispatch of advanced aeromedical life support. Advanced life support capabilities can be provided by paramedic level EMT's (Air Force Para rescue personnel (PJ's) with H-60 helicopter transportation, or Flight for Life civilian helicopter response). 66 RSQ PJs will provide medical chief at the crash site to aid in debris removal and provide any self-aid buddy care and medical assistance.

4.1.1. Support Assets.
4.1.1.1. 1 4X4 Ambulance
4.1.1.2. 2 Basic Emergency Medical Technicians

4.1.2. Maximum Capabilities.
4.1.2.1. Provide basic emergency medical care and transportation of:
4.1.2.1.1. 4 litter patients and 1 walking wounded
4.1.2.1.2. Or, 1 litter and 4 walking wounded
4.1.2.2. If EMT's need to transport injured to 99 MDG, it will take approximately 1 1/2 hour to 2 hours ground transportation time to arrive at the emergency room. During their absence, the recovery operation will be without on-site medical support.
4.1.2.3. Our EMT's will provide basic emergency medical care under the direction of establish pre-hospital protocols. Our EMT's function under the direction of the 99 MDG emergency room physicians.

4.2. Transportation. Multiple sources for transportation will be provided throughout the entire mission. The 99 TRNS will provide appropriate transportation of personnel, equipment, and resources. A 40' trailer and a Kentucky trailer will be needed to safely transport aircraft debris back to the base. A private contractor will provide airlift. The Reno ARNG CH-47 helicopter unit will provide heavy airlift transport. 57 EMS will have their own equipment for transport of conexs, equipment, and other resources.

4.3. Camp development. Development of the campsite will be supported by 99 CES/CEX, SVS, and CS.

4.4. Personnel. The personnel involved in this incident have been selected based on ability. A special team will be in place for Phase II abatement. Nellis AFB has provided the majority of manpower. ARNG will provide the appropriate engineers and riggers to accomplish the heavy airlift. Contractors will provide their own personnel for Phase V abatement.

4.5. Military assistance. Army National Guards of Reno, NV will be asked to provide heavy airlift support for this mission

4.6. Lines of communication. 99 CS will provide all lines of communication and maintain these lines. Satphones as well as VHS radios will be required during the operation for regular and emergency communication.

4.7. Sustainment. SVS will aid in providing meals, water, and other items required.

5. Command, Control, and Communications

5.1. Command

5.1.1. Command Relationships. Colonel Delwyn Eulberg is the Commander of the 99th ABW. He is the main base wing commander and therefore the responsible owner for the F-16 crash.

5.1.2. Delegation of Authority
Col Eulberg 99 ABW/CC (A/C owner)
Col Tedesco 99 SPTG/CC
Lt Col Buckalew 99 SPTG/CD
Col White 99 CES/CC
Lt Col O'Meara AWFC/SE/CC (Ground Safety CC)
Lt Thompson 99 CES/CEVX (Project Leader)
MSgt Antunes 57 EMS/CRS (Crash and Recovery)
TSgt Johnson 99 CES/CEX (Support Camp Leader)
Lt Schlaupitz (ORM plan leader)
MSgt Vollman (TRANS Operations POC)
Capt O'Sullivan (BEE)
TSgt Heier (MDG)

5.2. Communications

5.2.1. Communications. 99 CS will provide communication support for support camp, abatement area, helicopter support, and main base. Signal communications will be predetermined by 99 CS. The operations occur in the Pacific Standards time zone. The rendezvous site will be the support campsite located at (approximate lat/long TBD).

5.2.2. Combat Camera. CS will provide a photographer during the required phases.

Tab 2

Copy No 1
99 ABW
Nellis AFB, NV
2 Mar 01

**F-16 CRASH RECOVERY ORM REPORT**
References: AFPD90-9 and AFP90-902

1. Situation: An F-16 crashed on 7 Aug 00 on Mormon Mountain in a remote area on BLM land. The location is at 5900 feet above sea level and on a 35-degree surface incline. This Operational Risk Management Report will outline the hazards associated with removing the aircraft, controls for the different hazards, and will assign a risk level to each hazard. The risk level is based on the Risk Assessment Matrix (attachment 1).

2. Operations Plan: The Operations Plan for the removal of the aircraft is to contract the Reno Army National Guard to use their helicopters to lift the large pieces out, for Air Force personnel to load the smaller pieces for airlift out. The safety concerns for each part of the plan are detailed in attachment 2.

A. Helicopter Safety Concerns: The main concern from the Army Guard is the terrain when their personnel are on the ground slinging the large pieces and hazards coming from handling the aircraft (sharp edges and epoxy material).

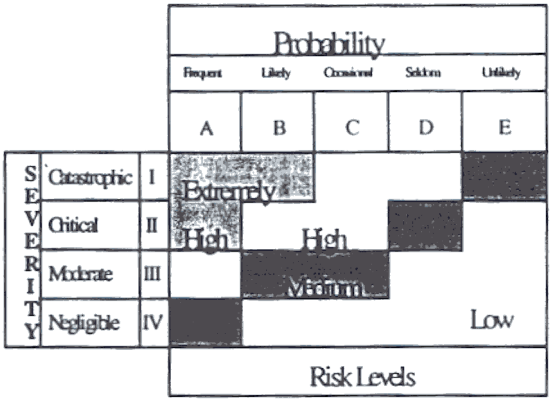
B. Air Force Safety Concerns: The primary concern for the Air Force personnel involved in removing the smaller pieces is from the rough terrain when people are moving around to collect the pieces of the aircraft. Additionally, the risk of lacerations from wreckage during the aircraft teardown by crash recovery as well as the removal of leftover large pieces of debris is a factor. Personnel who are not trained in the use of protective equipment required to break up composite materials on the aircraft should not be working at the site during the teardown phase. The use of augmentees should be kept to a minimum due to the austere nature of the aforementioned hazards.

3. Safety Criteria: Clean up operations will cease when safety concerns become too great. The criteria for the end of operations due to safety concerns will be defined as: enhanced likelihood of severe injury due to weather, slope, terrain, or sharp edges when controls are found to be ineffective or new hazards are introduced; sustained injury even when using controls. The OIC in Crash and Recovery on the scene will have the final say in whether this criteria is met and warrants a halt to clean-up operations.

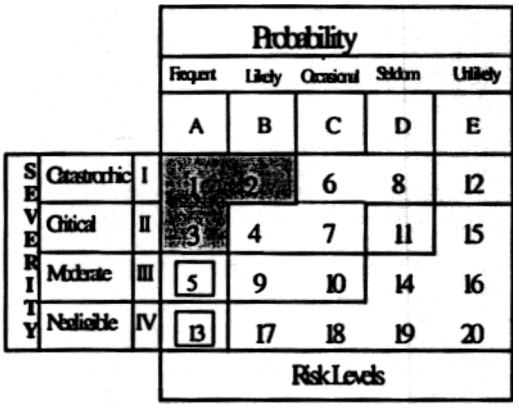
4. Recommendations: Removing the large pieces via the Reno National Guard can be achieved with minimal risk, but Air Force Ground Safety and Crash and Recovery do not feel the risk of injury to personnel is worth the effort to remove the smaller pieces. The recommendation is to contract the removal of the smaller pieces to a civilian contractor or to the PJ's (as was done in the A-10 crash removal in Colorado Springs). HQ AWFC Safety recommends that the minimum number of "qualified" personnel be used during the initial teardown phase and removal of large debris.

# ASSESS THE RISKS

Risk is the probability and severity of loss from exposure to the hazard. The assessment step is the application of quantitative or qualitative measures to determine the level of risk associated with a specific hazard. This process defines the probability and severity of an undesirable event that could result from the hazard.




**Risk Assessment Matrix**




**Modified Risk Assessment Matrix**

## SEVERITY

Catastrophic – Complete mission failure, death, or loss of system.
Critical – Major mission degradation, severe injury, occupational illness or major system damage.
Moderate – Minor mission degradation, injury, minor occupational illness, or minor system damage.
Negligible – Less than minor mission degradation, injury, occupational illness, or minor system damage

## PROBABILITY

Frequent – Individual/Item. Occurs often in career/equipment service life. Everyone exposed. Continuously experienced.
Likely – Individual/Item. Occurs several times in career/equipment service life. All members exposed. Occurs frequently.
Occasional – Individual/Item. Occurs sometime in career/equipment service life. All members exposed. Occurs sporadically, or several times in inventory/service life.
Seldom – Individual/Item. Possible to occur in career/equipment service life. All members exposed. Remote chance of occurrence; expected to occur sometime in inventory service life.
Unlikely – Individual/Item. Can assume will not occur in career/equipment service life. All members exposed. Possible, but improbable; occurs only very rarely.

Reference AFPAM 91-215 for Severity/Probability Definitions

| Hazard | Control | Risk Level (With Control) |
|---|---|---|
| **Helicopter Safety** | | |
| Brown-out | Spray wax mixture on ground | 16 |
| Weather (Winds) | Delay Operations | 16 |
| Terrain (Ground Personnel) | Use Caution | 9 |
| **Overall Risk** | | **LOW** |
| | | |
| **Ground Safety** | | |
| Elevation effects | Frequent Breaks/Hydration | 16 |
| Rough Terrain/Slope | Use Caution | 4 |
| Sharp Edges | Use Caution/Protective gear | 9 |
| Graphite and epoxy danger | Protective gear/Wax coating/Caution | 10 |
| High Winds | Delay Operations | 16 |
| Dumpster slipping | Bolt Down/Use nets instead | 14 |
| | | |
| **Overall Risk** | | **Med - High** |

Copy No 1
99 ABW
Nellis AFB, NV
16 Jan 01

## F-16 CRASH RECOVERY BUDGET PLAN

References: USGS Maps of Rox and Rox NE Quadrangle (Lincoln Co, NV)

1. BUDGET SOURCE. The 99 ABW is the host wing and is responsible at this time for the removal of the downed aircraft. Funding for the site will come from ACC. A cost center and ESP code have been set up by ACC for this reason. IMPAC and MIPRs will be used to purchase and contract the operation. Following is a breakdown per phase of associated costs.

2. BREAKDOWN OF PHASE COSTS.

    1. Operational Phases
        a. Phase I. Site Assessment
        b. Phase II. Site Abatement
        c. Phase III. Airlift and Support Removal
        d. Phase IV. Secondary Site Assessment
        e. Phase V. Contracted Abatement
        f. Phase VI. Site Reclamation
    2. Phase Timing of Joint Air Operations
        a. Phase I. 1 March 2001. Duration of 1 day.
        b. Phase II. 16 April 2001. Max phase time 5 days
        c. Phase III. 26 April 2001. Duration of 2 day
        d. Phase IV. 26 April 2001. In conjunction with Phase III
        e. Phase V. 1 June 2001. Request for bids included in timeframe
        f. Phase VI. Summer 2001. Duration dependent upon vegetation development and approval of reclamation.

| | | |
|---|---|---|
| a. Phase I (Site Assessment) | | |
| - Airlift from Reno ARNG | $1,500 | Fuel for 9 hr flight |
| - Billeting & Trans for ARNG crew | $0 | Nellis provisions |
| b. Phase II (Site Abatement) | | |
| - Days 1&2 (Daily placement of personnel & resources) | | |
| - Private airlift | $8,000 | 8 hours of total airtime |
| - EMS Equipment | $4,000 | Safety & operational |
| c. Phase III (Airlift and Support Removal) | | |
| -Days 3&4 | | |
| - Airlift from Reno ARNG | $8,300 | Travel from Reno (2.5 hr) |
| - Airlift from Reno ARNG | $12,500 | Travel to/from Nellis (4 hr) |

| | | |
|---|---|---|
| - Airlift from Reno ARNG | $12,500 | Travel to/from mancamp(4 hr) |
| -Day 5 | | |
| - Airlift from Reno ARNG | $6,300 | Travel to/from Nellis (2 hr) |
| - Airlift from Reno ARNG | $9,400 | Resource removal (3 hr) |
| - Airlift from Reno ARNG | $8,300 | Travel to Reno (2.5 hr) |

d. Phase IV (Secondary Site Assessment)

| | | |
|---|---|---|
| - Private airlift | $5,000 | BLM/contractor airtime (5 hr) |

e. Phase V (Contracted Abatement if necessary)

| | | |
|---|---|---|
| - Private contractor | $100,000 | Complete removal & reclamation |

f. Phase VI (Site Reclamation if necessary)

1. - See Phase V for cost estimate

DRAFT DRAFT DRAFT DRAFT

NELLIS AIR FORCE BASE, Nev. The Air Force is proposing to remove the wreckage of an F-16 that crashed into Mormon Mountain on Aug. 7, 2000.

The draft environmental assessment is available for public review on the World Wide Web at nellis.af.mil/pa/F-16ea.pdf.

The wreckage is located on the northwest side of Mormon Peak, a designated wilderness study area, at an elevation of about 6,000 feet. The assessment describes the terrain as steep and rocky.

The alternatives discussed in the draft environmental assessment look at potential impacts on wilderness values, hazardous materials, air quality, biological and cultural resources, land use, water quality and socioeconomics.

The Air Force is proposing to restore the crash site to as close as possible to its original condition.

Written comments should be mailed to AWFC/PA, 4370 N. Washington Blvd. Suite 223, Nellis AFB, NV 89191-7078, or e-mail mike.estrada@nellis.af.mil. For additional information on the Nellis Air Force Base environmental stewardship program, write or e-mail Mr. Michael Estrada, Air Warfare Center chief of Public Affairs, or call (702) 652-2750 or 1-800-859-3804.

-30-